

**What Is Claimed Is:**

1           1.       A method for allocating computer system resources between  
2 concurrently executing workloads, comprising:  
3           establishing a first resource pool that specifies requirements for each of a  
4 plurality of different computer system resources;  
5           allocating the plurality of different computer system resources to one or  
6 more resource pools, including the first resource pool, to create a resource  
7 allocation, wherein requirements of the first resource pool are satisfied, and  
8 wherein resources allocated to the first resource pool can change over time; and  
9           binding a first process to the first resource pool, so that the first process  
10 has access to the plurality of different computer system resources allocated to the  
11 first resource pool.

1           2.       The method of claim 1, wherein allocating the plurality of different  
2 computer system resources to one or more resource pools involves:  
3           partitioning each of the plurality of different computer system resources  
4 into one or more partitions, wherein a first partition is associated with a first  
5 resource and a second partition is associated with a second resource;  
6           allocating the first partition to a single resource pool, so that only  
7 processes associated with the single resource pool can access the first partition;  
8 and  
9           allocating the second partition to multiple resource pools so that processes  
10 associated with the multiple resource pools can share the second partition.

1           3.       The method of claim 1, wherein prior to allocating the plurality of  
2 different computer system resources, the method further comprises:

3 verifying that collective requirements of the one or more resource pools  
4 can be satisfied; and  
5 if the collective requirements cannot be satisfied, signaling an error  
6 condition.

1 4. The method of claim 1, wherein establishing the first resource pool  
2 involves selecting a file containing a representation of the first resource pool from  
3 a plurality of possible files.

1 5. The method of claim 1, further comprising storing a representation  
2 of the resource allocation to non-volatile storage so that the resource allocation  
3 can be reused after a machine failure.

1 6. The method of claim 5, wherein storing the representation of the  
2 resource allocation involves storing a representation of each of the one or more  
3 resource pools along with associated resources.

1 7. The method of claim 5, wherein storing the representation of the  
2 resource allocation involves storing an Extensible Markup Language (XML)  
3 representation of the resource allocation.

1 8. The method of claim 1,  
2 wherein the first resource pool is associated with a first project; and  
3 wherein the first process is one of a plurality of processes associated with  
4 the first project.

1           9.       The method of claim 1, wherein establishing the first resource pool  
2 involves establishing minimum and maximum requirements for a given resource.

1           10.      The method of claim 1, further comprising dynamically adjusting  
2 the resource allocation during system execution.

1           11.      The method of claim 1, wherein the plurality of different computer  
2 system resources can include:  
3           central processing units;  
4           semiconductor memory;  
5           swap space; and  
6           networking resources.

1           12.      A computer-readable storage medium storing instructions that  
2 when executed by a computer cause the computer to perform a method for  
3 allocating computer system resources between concurrently executing workloads,  
4 the method comprising:  
5           establishing a first resource pool that specifies requirements for each of a  
6 plurality of different computer system resources;  
7           allocating the plurality of different computer system resources to one or  
8 more resource pools, including the first resource pool, to create a resource  
9 allocation, wherein requirements of the first resource pool are satisfied, and  
10 wherein resources allocated to the first resource pool can change over time; and  
11           binding a first process to the first resource pool, so that the first process  
12 has access to the plurality of different computer system resources allocated to the  
13 first resource pool.

1           13.     The computer-readable storage medium of claim 12, wherein  
2     allocating the plurality of different computer system resources to one or more  
3     resource pools involves:  
4           partitioning each of the plurality of different computer system resources  
5     into one or more partitions, wherein a first partition is associated with a first  
6     resource and a second partition is associated with a second resource;  
7           allocating the first partition to a single resource pool, so that only  
8     processes associated with the single resource pool can access the first partition;  
9     and  
10          allocating the second partition to multiple resource pools so that processes  
11     associated with the multiple resource pools can share the second partition.

1           14.     The computer-readable storage medium of claim 12, wherein prior  
2     to allocating the plurality of different computer system resources, the method  
3     further comprises:  
4           verifying that collective requirements of the one or more resource pools  
5     can be satisfied; and  
6           if the collective requirements cannot be satisfied, signaling an error  
7     condition.

1           15.     The computer-readable storage medium of claim 12, wherein  
2     establishing the first resource pool involves selecting a file containing a  
3     representation of the first resource pool from a plurality of possible files.

1           16.     The computer-readable storage medium of claim 12, wherein the  
2     method further comprises storing a representation of the resource allocation to

3 non-volatile storage so that the resource allocation can be reused after a machine  
4 failure.

1 17. The computer-readable storage medium of claim 16, wherein  
2 storing the representation of the resource allocation involves storing a  
3 representation of each of the one or more resource pools along with associated  
4 resources.

1 18. The computer-readable storage medium of claim 16, wherein  
2 storing the representation of the resource allocation involves storing an Extensible  
3 Markup Language (XML) representation of the resource allocation.

1 19. The computer-readable storage medium of claim 12,  
2 wherein the first resource pool is associated with a first project; and  
3 wherein the first process is one of a plurality of processes associated with  
4 the first project.

1 20. The computer-readable storage medium of claim 12, wherein  
2 establishing the first resource pool involves establishing minimum and maximum  
3 requirements for a given resource.

1 21. The computer-readable storage medium of claim 12, wherein the  
2 method further comprises dynamically adjusting the resource allocation during  
3 system execution.

1 22. The computer-readable storage medium of claim 12, wherein the  
2 plurality of different computer system resources can include:

3 central processing units;  
 4 semiconductor memory;  
 5 swap space; and  
 6 networking resources.

1 23. An apparatus that allocates computer system resources between  
 2 concurrently executing workloads, comprising:  
 3 an establishment mechanism that is configured to establish a first resource  
 4 pool that specifies requirements for each of a plurality of different computer  
 5 system resources;  
 6 an allocation mechanism that is configured to allocate the plurality of  
 7 different computer system resources to one or more resource pools, including the  
 8 first resource pool, to create a resource allocation, wherein requirements of the  
 9 first resource pool are satisfied, and wherein resources allocated to the first  
 10 resource pool can change over time; and  
 11 a binding mechanism that is configured to bind a first process to the first  
 12 resource pool, so that the first process has access to the plurality of different  
 13 computer system resources allocated to the first resource pool.

1 24. The apparatus of claim 23, wherein the allocation mechanism is  
 2 configured to:  
 3 partition each of the plurality of different computer system resources into  
 4 one or more partitions, wherein a first partition is associated with a first resource  
 5 and a second partition is associated with a second resource;  
 6 allocate the first partition to a single resource pool, so that only processes  
 7 associated with the single resource pool can access the first partition; and to



1 wherein the first resource pool is associated with a first project; and  
2 wherein the first process is one of a plurality of processes associated with  
3 the first project.

1 31. The apparatus of claim 23, wherein the establishment mechanism  
2 is configured to establish minimum and maximum requirements for a given  
3 resource.

1 32. The apparatus of claim 23, further comprising an adjustment  
2 mechanism that is configured to dynamically adjust the resource allocation during  
3 system execution.

1 33. The apparatus of claim 23, wherein the plurality of different  
2 computer system resources can include:  
3 central processing units;  
4 semiconductor memory;  
5 swap space; and  
6 networking resources.